REMARKS

Claims 1, 2, 5 and 8-18 are currently pending in the subject application. By the instant amendment, claim 2 is canceled, and the subject matter thereof is incorporated into claim 1. Also by the instant amendment, dependent claims 5, 8, 14 and 15 are amended to revise the dependencies thereof, and claim 18 is amended to correct an error of a typographical/editorial nature. No new matter is added by the instant amendments to claims 1, 5, 8, 14, 15 and 18.

Applicants appreciate the Examiner's acknowledgement of applicants' claim for foreign priority and receipt of a certified copy of the priority document.

Applicants further appreciate the Examiner's acceptance of the drawings filed on December 6, 2001.

Claims 1, 5 and 8-18 are presented to the Examiner for further prosecution on the merits.

A. Introduction

In the outstanding Office Action, the Examiner rejected claim 1 under 35 U.S.C. § 102(b) as being anticipated by Japanese Patent No. 9181049A to Hiroshi et al. ("the Hiroshi et al. reference"), rejected claims 1 and 16-18 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,085,688 to Lymberopoulos et al. ("the Lymberopoulos et al. reference") and under 35 U.S.C. § 103(a) as being unpatentable over the applicants' admitted prior art ("the AAPA") at FIG. 1A and pages 2-3, in view of the Hiroshi et al. reference, rejected claims 1, 2, 5, 8-13, 15, and 18 under 35 U.S.C. § 103(a) as being unpatentable over the AAPA in view of U.S. Patent No. 6,296,747 B1 to Tanaka ("the Tanaka reference"), and rejected claim 14 under 35 U.S.C. § 103(a) as being unpatentable over the AAPA in view of the Tanaka reference, and further in view of U.S. Patent No. 6,299,746 to Conte et al. ("the Conte et al. reference").

B. Asserted Rejections Under 35 U.S.C. § 102(b)

1. Claim 1

Claim 1 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Japanese Patent No. 9181049A to Hiroshi et al. ("the Hiroshi et al. reference").

This rejection is respectfully traversed, as claim 1 has been amended to include the subject matter of claim 2, which has been canceled.

More particularly, claim 1 has been amended to recite the following:

> the plasma concentrating means including:
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> an electrode having a first length on which the semiconductor device to be processed is positioned;
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> an insulating plate having a second length longer than the first length and facing the electrode; and
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> a confinement layer contacting the edge of the insulating plate, forming an acute angle to a virtual plane connecting opposing ends of the insulating plate, and extending toward an edge of the first electrode.

From claim 1 of U.S. Patent Application Serial No. 10/003,412, as amended.

The Hiroshi et al. reference includes an insulating ring 3, but neither teaches nor suggests an insulating plate or a confinement layer contacting the edge of the insulating plate and forming an acute angel to a virtual plane connecting opposing ends of the insulating plate, as presently recited in claim 1. Therefore, claim 1 is believed to be patentably distinguished over the Hiroshi et al. reference and in condition for allowance.

Accordingly, reconsideration and withdrawal of this rejection of claim 1 are respectfully requested.

2. Claims 1 and 16-18

Claims 1 and 16-18 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,085,688 to Lymberopoulos et al. ("the Lymberopoulos et al. reference").

This rejection is respectfully traversed, as claim 1 has been amended to include the subject matter of claim 2 as indicated above, and claim 2 has been canceled.

The Lymberopoulos et al. reference is directed toward controlling electron temperature near a work piece, and uses a magnetic field provided by conductors 150A and 150b to perform this function. The Lymberopoulos et al. reference neither teaches nor suggests an insulating plate or a confinement layer contacting the edge of the insulating plate and forming an acute angel to a virtual plane connecting opposing ends of the insulating plate, as presently recited in claim 1.

Therefore, claim 1 is believed to be patentably distinguished over the Lymberopoulos et al. reference and in condition for allowance. Further, claims 16-18, which depend either directly or indirectly from claim 1, are believed to be similarly allowable as depending from an allowable base claim.

Accordingly, reconsideration and withdrawal of this rejection of claims 1 and 16-18 are respectfully requested.

C. Asserted Rejections Under 35 U.S.C. § 103(a)

1. Claims 1 and 16-18

Claims 1 and 16-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the applicants' admitted prior art ("the AAPA") at FIG. 1A and pages 2-3, in view of the Hiroshi et al. reference.

This rejection is respectfully traversed, as claim 1 has been amended to include the subject matter of claim 2 as indicated above, and claim 2 has been canceled.

As previously stated, the Hiroshi et al. reference includes an insulating ring 3, but neither teaches nor suggests an insulating plate or a confinement layer contacting the edge of the

insulating plate and forming an acute angel to a virtual plane connecting opposing ends of the insulating plate, as presently recited in claim 1. Further, the AAPA neither teaches nor suggests a confinement layer contacting the edge of the insulating plate and forming an acute angel to a virtual plane connecting opposing ends of the insulating plate, as presently recited in claim 1. Therefore, it is respectfully submitted that combining the teaching of the Hiroshi et al. reference with that of the AAPA does not render obvious the present invention as recited in amended claim 1.

Accordingly, claim 1 and claims 16-18, which are either directly or indirectly dependent therefrom, are believed to be in condition for allowance, and a notice to such effect is respectfully requested.

2. Claims 1, 2, 5, 8-13, 15, and 18

Claims 1, 2, 5, 8-13, 15, and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the AAPA at FIG. 1A and pages 2-3, in view of U.S. Patent No. 6,296,747 B1 to Tanaka ("the Tanaka reference").

This rejection is respectfully traversed, as the cited combination of prior art references fails to disclose or suggest each and every element of independent claim 1 as presently recited.

Specifically, the Tanaka reference teaches a baffled perforated shield for particular use during self-ionized plasma sputtering of TiN and TaN or other situations requiring a reactive gas such as nitrogen to be supplied to the reaction chamber. The Tanaka reference teaches a shield 96 extending only part way down the length of the chamber wall, so that a large inlet 112 for the reactive gas is provided. The Tanaka reference neither teaches nor suggests an insulating plate or a confinement layer contacting the edge of the insulating plate and forming an acute angel to a

virtual plane connecting opposing ends of the insulating plate and extending toward an edge of the first electrode, as presently recited in claim 1.

Further, as previously stated, the AAPA also fails to teach or suggest a confinement layer contacting the edge of the insulating plate and forming an acute angel to a virtual plane connecting opposing ends of the insulating plate and extending toward an edge of the first electrode, as presently recited in claim 1. Therefore, it is respectfully submitted that combining the teaching of the Tanaka reference with that of the AAPA does not render obvious the present invention as presently recited in claim 1.

Accordingly, independent claim 1 and dependent claims 5, 8-13, 15, and 18, which are either directly or indirectly dependent therefrom, are believed to be patentably distinguished over the combination of cited prior art references and in condition for allowance. Further, as claim 2 has been canceled, the subject matter thereof having been incorporated into claim 1, the rejection of claim 2 is rendered moot.

Accordingly, reconsideration and withdrawal of this rejection of claims 1, 2, 5, 8-13, 15, and 18 are respectfully requested.

3. Claim 14

Claim 14 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over the AAPA at FIG. 1A and pages 2-3, in view of the Tanaka reference, and further in view of U.S. Patent No. 6,299,746 to Conte et al. ("the Conte et al. reference").

This rejection is respectfully traversed, and it is respectfully submitted that there is no motivation to combine the teachings of the Conte et al. reference with the teachings of the AAPA or the Tanaka reference.

Specifically, the Conte et al. reference is directed toward a getter system for purifying a gaseous atmosphere of a physical vapor deposition (PVD) chamber, as opposed to the AAPA, which is directed toward a plasma etching apparatus. Therefore, it is respectfully submitted that there is no motivation to combine the getter system for a PVD chamber of the Conte et al. reference with the induced coupled plasma etching apparatus of FIG. 1A of the AAPA.

Further, as stated above, the Tanaka reference discloses a baffled perforated shield for particular use during self-ionized plasma sputtering of TiN and TaN or other situations requiring a reactive gas, such as nitrogen, to be supplied to the reaction chamber. The Tanaka reference teaches a shield 96 extending only part way down the length of the chamber wall, so that a large inlet 112 for the reactive gas is provided.

The Conte reference, however, discloses a getter system in which getter devices 26 are formed parallel to screens 20, 20', for removing impurities from a PVD process chamber. The getter devices 26 and screens 20, 20' divide the chamber into confinement volumes 21 and 22, as illustrated in FIG. 1 of the Conte reference. Gas flow communication occurs through the small opening 23 at the edge of the screens 20, 20', as illustrated in FIG. 1 and described at col. 4, lines 39-45 of the Conte et al. reference. This teaching of the Conte et al. reference differs significantly from the disclosure of the Tanaka reference, which teaches at col. 3, lines 24-44, a constricted gap 34, which is substantially identical to the gas flow communication space 23 of the Conte et al. reference, is insufficient for flow of a reactive gas such as nitrogen. The insufficiency of the constricted gap 34, which is similar to the gap 23 of the Conte et al. reference, provides the basis for the invention of the Tanaka et al. reference. Therefore, it is respectfully submitted that combining "the shape of the screen as taught by Conte in the shield member of [Tanaka]," as suggested by the Examiner at page 8 of the outstanding Office Action,

would render the invention of the Tanaka reference inoperable for its intended purpose. Furthermore, inclusion of the getter system of the Conte et al. reference would impede the feature of the invention of the Tanaka reference described at col. 6, lines 64-66, of providing, "with only minimal increase in chamber complexity, a high conductance path for the flow of processing gas."

Section 2143.01 of the Manual of Patent Examining Procedure states in part:

> The proposed modification cannot render the prior art unsatisfactory for its intended purpose. If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).*
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> * * *
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> If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).*

Therefore, at least because modification of the Tanaka reference by the shield design of the Conte et al. reference would render the Tanaka reference unsatisfactory for its intended purpose, it is respectfully submitted that there is no motivation to combine the teachings of the cited prior art references and that any such combination to reject the claims of the subject application is improper.

Further, combining the teachings of the AAPA with the teachings of the Tanaka reference fails to render obvious the present invention as recited in claim 1, from which claim 14 depends. More particularly, as described above, neither the AAPA nor the Tanaka reference teaches or suggests an insulating plate having a second length longer than the first length and facing the electrode, and a confinement layer contacting the edge of the insulating plate, forming an acute

angle to a virtual plane connecting opposing ends of the insulating plate, and extending toward an edge of the first electrode, as presently recited in claim 1. Therefore, it is respectfully submitted that a combination of the teachings of the Tanaka reference with that of the AAPA does not render obvious the present invention as recited in claim 14.

Accordingly, reconsideration and withdrawal of the rejection of claim 14 are respectfully requested.

D. Conclusion

In view of the remarks and amendments submitted herewith, applicants respectfully submit that claims 1, 5 and 8-18 are now in condition for allowance.

If the Examiner believes that additional discussions or information might advance the prosecution of the instant application, the Examiner is invited to contact the undersigned at the telephone number listed below to expedite resolution of any outstanding issues.

In view of the foregoing amendments and remarks, reconsideration of this application is earnestly solicited, and an early and favorable further action upon all pending claims is hereby requested.

Date: February 9, 2004

Respectfully submitted,

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PETITION and DEPOSIT ACCOUNT CHARGE AUTHORIZATION

This document and any concurrently filed papers are believed to be timely. Should any extension of the term be required, applicant hereby petitions the Director for such extension and requests that any applicable petition fee be charged to Deposit Account No. 50-1645.

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Any additional fee(s) necessary to effect the proper and timely filing of the accompanying-papers may also be charged to Deposit Account No. 50-1645.